

CLAIMS

1. A method of locating an electromagnetic protection defect (DF) in an electrical harness (H) including at least one sheath of electromagnetic shielding (GB), the method being characterized in that it comprises:
- 5 a) an amplification step of producing stimulation electrical signals in an operating frequency range and at a predetermined power level;
- b) an application step of applying said stimulation electrical signals to said shielding sheath in order to generate an electromagnetic field in a detection zone; and
- 10 c) an analysis step of taking temperature measurements in said detection zone.
- 15 2. A method according to claim 1, characterized in that said analysis step consists in making a temperature map (CT) of said harness (H).
- 20 3. A method according to claim 1 or claim 2, characterized in that the frequency of said stimulation electrical signals lies in the range 1 GHz to 5 GHz.
4. A method according to any preceding claim, characterized in that said stimulation electrical signals are of the sinewave type.
- 25 5. A method according to any preceding claim, characterized in that said detection zone is close to said shielding sheath (GB).
- 30 6. A method according to any one of claims 2 to 5, characterized in that the temperature range of said temperature map is converted into a palette of colors.
- 35 7. A method according to claim 6, characterized in that a predetermined range of colors defines a rejection

criterion whereby a harness (H) is determined as suffering from at least one electromagnetic protection defect.

5 8. A method according to any preceding claim,
characterized in that it is implemented on a harness (H)
having its shielding sheath (GB) constituted exclusively
by a textile braid (TT) on which a layer of electrically
conductive and/or photothermal material has previously
10 been deposited.

9. A method according to any one of claims 1 to 7,
characterized in that it is implemented on a harness (H)
having its shielding sheath (GB) constituted exclusively
15 by a textile braid (TT) with hollow fibers containing an
electrically conductive and/or photothermal material.

10. A method according to any one of claims 1 to 7,
characterized in that it is implemented on a harness (H)
20 having its shielding sheath (GB) constituted by a braid
of metal wires onto which an electrically conductive
and/or photothermal material is applied.

11. A method according to any one of claims 8 to 10,
25 characterized in that the electrically conductive and/or
photothermal material contains carbon or "resistive
carbons".

12. A method according to any one of claims 1 to 11,
30 characterized in that it is implemented on a plurality of
adjacent harnesses.

13. Apparatus for implementing the method specified in
any one of claims 1 to 12, the apparatus being
35 characterized in that it comprises:

- first means (M1) for generating stimulation electrical signals in an operating frequency range at a predetermined power level;

- second means (M2) connected to the first means (M1) via a link (1) for raising said stimulation electrical signals to a predetermined power level;

- third means (M3) connected to the second means (M2) via a link (2), for applying said stimulation electrical signals to the shielding sheath (GB) in such a manner as to generate an electromagnetic field (EM);

- fourth means (M4) for converting the radiant energy emitted by the electromagnetic field (EM) at a defect into thermal energy (ET); and

- fifth means (M5) for detecting the thermal energy and associated with an image acquisition and storage unit (UA), an image processor unit (UT), and an image display unit (UR) in order to perform thermal analysis, draw up a temperature map (CT), and locate on said temperature map the electromagnetic protection defect (DF) of said shielding sheath (GB) of the harness (H).

14. Apparatus according to claim 13, characterized in that the fourth means (M4) comprises a photothermal component.

15. Apparatus according to claim 14, characterized in that said photothermal component contains carbon or "resistive carbons".

16. Apparatus according to claim 15, characterized in that said photothermal components, is external to said harness (H), and comprises a flexible film on which an electrically conductive and/or photothermal material is deposited.

17. Apparatus according to claim 16, characterized in that said electrically conductive and/or photothermal material contains resistive carbons.

5 18. Apparatus according to any one of claims 12 to 17, characterized in that the fifth means (M5) comprise an infrared camera.

10 19. Apparatus according to any one of claims 12 to 18, characterized in that a temperature map is drawn up to locate the electromagnetic protective defect (DF) of said electromagnetic shielding sheath (GB).

15 20. Apparatus according to claim 19, characterized in that it includes means for drawing up a temperature map (CT) in the form of a false color display, each color representing a predetermined temperature difference.

20 21. Apparatus according to claim 20, characterized in that a criterion for rejecting said harness (H) corresponds to a predetermined range of colors.

25 22. A harness (H) including at least one electrical conductor (C) within an electrically insulating tube (TB), said tube being provided with a protective covering, the harness being characterized in that said protective covering comprises a screen of electrically conductive and/or photothermal material.

30 23. A harness (H) according to claim 22, characterized in that said protective covering comprises a textile braid (TT) having said screen deposited thereon.

35 24. A harness (H) according to claim 22, characterized in that said protective covering comprises a textile braid (TT), the fibers of said textile braid being hollow and

containing said electrically conductive and/or photothermal material.

25. A harness (H) according to claim 22, characterized in
5 that said protective covering comprises a shielding
sheath (GB) constituted by a metal braid having said
screen of electrically conductive and/or photothermal
material applied thereto.
- 10 26. A harness (H) according to any one of claims 22 to
25, characterized in that said photothermal material is
"resistive carbons".